

HYDROMODIFICATION

BACKGROUND

Hydromodification is defined by EPA as the “alteration of the hydrologic characteristics of surface waters, which in turn could cause degradation of water resources.” According to EPA, three general types of habitat modification must be addressed by states as they develop their nonpoint programs: 1) channelization and channel modification; 2) dams; and 3) streambank and shoreline erosion.

In Washington, hydromodification activities have significantly influenced the hydrogeology of the state. The construction of dams, tide gates, culverts, bridges, piers, and jetties, as well as the armoring of shorelines and the placement of fill, have helped create drinking water supplies, reduce flood impacts, expand road networks, improve navigation, increase drainage, prevent erosion, and reduce sediment loss. Many of these activities have also led directly or indirectly to adverse impacts on aquatic ecosystems

1998 FINDING FROM EPA AND NOAA

Findings:

Washington's program does not include management measures in conformity with the 6217(g) guidance for channelization, dams, or stream banks and shorelines or enforceable policies and mechanisms to ensure implementation throughout the 6217 management area.

Conditions:

Within three years, Washington will include in its program management measures in conformity with the 6217(g) guidance for channelization, dams, and streambanks and shorelines and enforceable policies and mechanism to ensure implementation throughout the 6217 management area.

Rationale:

Washington's program does not include management measures in conformity with the 6217(g) guidance for channelization, dams, or shorelines and stream banks. The state's submittal identifies several laws that could be used to meet the management measures. These include: (i) the Hydraulic Act, which requires approvals for work that will change the natural flow or bed in waters of the state; (ii) the State Environmental Policy Act, which requires state agencies to ensure that environmental values are given appropriate consideration in state decision-making along with economic and technical considerations; (iii) Chapter 43.21A RCW, which outlines the duties and responsibilities of the Department of Ecology; and, (iv) the Hazardous Waste Cleanup - Model Toxics Control Act, which requires investigation and remedial actions for releases or threatened releases of hazardous substances.

None of these laws, however, specifically address the management measures. In addition, NOAA and EPA have specific concerns that, under the Hydraulic Act,

protection of fish life is the only basis upon which proposed work can be disapproved (@ RCW 75.20.100). The State is thus unable to protect other water quality values that may be affected by hydromodification, such as flows, chemical parameters, or instream and riparian vegetation. Two of the other cited laws (the State Environmental Policy Act and Chapter 43.21A RCW) are general environmental laws that do not indicate how the State might choose to address hydromodification activities.

Stream Channelization and Channel Modification

BACKGROUND

Water is primarily diverted for two uses: drinking water and irrigation water. Many of Washington's older cities rely in whole or part on surface water for drinking water supplies. In addition, numerous irrigation systems in the state use human-built side channels for water diversion and return flows.

Flood control and sediment management are also important in Washington. Floods in 1990 and 1996 incurred damages of millions of dollars. Many of the flood control structures are owned and managed by the US Army Corps of Engineers. Probably the largest structure completed in recent years was the sediment retention dam on the Toutle River, following the eruption of Mount St. Helens.

Siltation is another important problem in Washington. Puget Sound's ports manage more than 50 million tons of cargo each year, at over 200 docks and piers. In addition, Puget Sound is home to much of the Alaskan fishing fleet. Such traffic requires periodic dredging to maintain shipping channels. In some areas, such as the Ports of Seattle and Tacoma, artificial waterways have been constructed to increase available dock space.

DESCRIPTION FROM FEDERAL GUIDANCE

The terms channelization and channel modification refer to the excavation of borrow pits, canals, underwater mining, or other practices that change the dept, width, or location of waterways or embayments in coastal areas.

For the purpose of federal guidance, no distinction is made between the terms river and stream because no definition of either could be found to quantitatively distinguish between the two. There are two management measures for Channelization:

Ila Physical and Chemical Characteristics of Surface Waters

Ilb Instream and Riparian Habitat Restoration

Specific Federal Guidance for each is discussed in those sections.

NONPOINT POLLUTION ASSOCIATED WITH STREAM CHANNELIZATION

The major concern for Washington is the decrease in fish habitat in altered water bodies. This is especially true for anadromous fish. Stream channelization can cause streambed scouring and hardening, streambank erosion, altered waterways, and altered hydrochemistry. As a result, there are potential changes in pH, metals concentration, dissolved oxygen, instream flow, and nutrient levels.

Mitigation measures, particularly those dealing with channelization and riparian habitat, are partially addressed through wetlands programs and fish and wildlife habitat programs.

One goal for Washington is to ensure that there is no net short-term or long-term loss in aquatic and riparian habitat, and to coordinate federal, state, local and tribal fish and wildlife protection programs.

SOURCE CONTROL STRATEGY

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

Implementation of certification or permit requirements rely upon local government involvement. State agencies use existing statutes and regulations to oversee local activities, and to assure that any activity meets state water quality or other instream needs.

SEPA

For proposed hydromodification projects, the State Environmental Policy Act (SEPA) requires an investigation of the impacts of projects on the environment through the SEPA checklist. The checklist provides for an extensive look at the impacts of each project on surface waters.

The regulations implementing the Hydraulic Code state:

“Channel changes/realignments are generally discouraged, and shall only be approved where the applicant can demonstrate benefits or lack of adverse impact to fish life. Channel change/realignment projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following technical provisions shall apply to channel change and channel realignment projects:

When approved, a channel change may occur provided:

(1) Permanent new channels shall, at a minimum, be similar in length, width, depth, floodplain configuration, and gradient, as the old channel. The new channel shall incorporate fish habitat components, bed materials, meander configuration, and native or other approved vegetation equivalent to or greater than that which previously existed in the old channel.

(2) During construction, the new channel shall be isolated from the flowing stream by plugs at the upstream and downstream ends of the new channel.

- (3) Before water is diverted into a permanent new channel, the applicant shall complete the following actions:
- (a) Approved fish habitat components, bed materials and bank protection to prevent erosion shall be in place.
 - (b) Approved fish habitat components shall be installed according to an approved design to withstand the 100-year peak flows.
- (4) All disturbed areas shall be protected from erosion, within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated within one year with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center), and maintained as necessary for three years to ensure eighty percent survival. Where proposed, planting densities and maintenance requirements for rooted stock will be determined on a site-specific basis. The requirement to plant woody vegetation may be waived for areas where the potential for natural revegetation is adequate, or where other engineering or safety factors preclude them.
- (5) Diversion of flow into a new channel shall be accomplished by: (a) First removing the downstream plug; (b) removing the upstream plug; and (c) closing the upstream end of the old channel.
- (6) Filling of the old channel shall begin from the upstream closure and the fill material shall be compacted. Water discharging from the fill shall not adversely impact fish life.
- (7) The angle of the structure used to divert the water into the new channel shall allow a smooth transition of water flow.
- (8) If fish may be adversely impacted as a result of this project, the permittee will be required to capture and safely move food fish, game fish or other fish life (at the discretion of the department) to the nearest free-flowing water. The permittee may request the department to assist in capturing and safely moving fish life from the job site to free-flowing water, and assistance may be granted if personnel are available.”

As with all other projects in the state, any hydromodification project requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

401 Certification and Coastal Zone Consistency Determinations:

Section 401 of the federal Clean Water Act authorizes states to approve, condition, or deny projects that need a federal permit for in-water or in-wetland work. [Federal permits include Section 10 and/or 404 permits from the Corps of Engineers, Section 9 permits

from the Coast Guard, and hydropower licenses from the Federal Energy Regulatory Commission.] The 401 certification covers both the construction and operation of a proposed project. The 401 certification requires compliance with state water quality standards and other appropriate requirements of State law. The conditions of a 401 certification become conditions of the federal approval and accomplishes the following:

- Requires that federal actions (including permit issuance) be consistent with state Coastal Zone Management Programs.
- Applies in Washington's 15 coastal counties and in non-coastal counties where coastal resources (e.g., salmon) may be affected.
- In Washington, CZMP consistency includes compliance with:
 - State Environmental Policy Act
 - State Shoreline Management Act
 - Federal Clean Water Act (i.e., Section 401) and Clean Air Act
 - Energy Facilities Siting Evaluation Council

Ecology reviews proposed projects for consistency with the above regulations and generally issues its CZM Consistency Response along with its 401 Certification, as well as with a coordinated state response on behalf of state resource agencies.

Ecology's review evaluates the effects of proposed projects on water quality, riparian habitat, floodplains, wetland functions and values, stormwater discharges, cumulative impacts, water rights, and other aquatic resource-related elements. A certification decision can include conditions to ensure compliance with the following federal and state regulations:

Federal:

Clean Water Act (various sections)

Coastal Zone Management Act

Clean Air Act

National flood programs

State:

Water and Sediment Quality Standards

SEPA/GMA

Hydraulics Code

Shoreline Management Act

Water resources and water rights

State and local flood programs

Others, as they may apply to a given project

EFFORTS TO IMPROVE HYDROMODIFICATION PROGRAMS IN WASHINGTON

Washington has reviewed the channelization requirements and finds that adequate programs exist to implement the following management measures:

IIa Physical and Chemical Characteristics of Surface Water

IIb Instream and Riparian Habitat Restoration

Washington intends to take the following additional actions to improve water quality and fish habitat:

Salmon Recovery Plan

The following "early" actions are commitments for the FY1999-2001 time period from the Joint Natural Resources Cabinet. They constitute the first two years of implementation activities submitted to NMFS and designed to address salmon recovery needs. These actions provide additional important commitments to improving water quality and cleaning up nonpoint source pollution due to hydromodification activities.

- Provide technical guidance, design criteria and financial assistance to local agencies and groups, including volunteers, to inventory, prioritize and correct barriers and screening problems and prevent new passage problems.
- Develop and implement Integrated Stream Corridor Guidelines, building on the completed Integrated Streambank Protection Guidelines

1. Management Measure Number IIA: Physical and Chemical Characteristics of Surface Waters

Description from Federal Guidance

- (1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in the coastal area.
- (2) Plan and design channelization and channel modification to reduce undesirable impacts; and
- (3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

1998 Finding from EPA and NOAA

See general findings for Hydromodification.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)

Chapter 197-11-908 WAC

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Shoreline Management Act (Chapter 90.58-340 RCW)

Water Pollution Control Act (90.48 RCW)

Chapter 173-201A WAC (Water Quality Standards)

Chapter 173-204-400 WAC (Sediment Source Control)

Description of Current Programs in Washington

As with all other projects in the State, any hydromodification requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

For project planning and review purposes, SEPA review, 401 certification, and Coastal Zone Determinations are the primary regulatory programs. The ability to address the three components has been adequately described in the Hydromodification overview.

A key to this process is the systematic review by agencies and the public. SEPA provides the framework to address process questions, while the 401 certification and Coastal Zone Determination focus on integration of legal authorities, the most critical of which are compliance with the state Water Quality Standards, Sediment Control Standards, and Hydraulics Code.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Department of Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

WAC 173-204-400 sets forth a process for managing sources of sediment contamination. The goal of this process is to manage source control activities to reduce and ultimately eliminate adverse effects on biological resources and significant threats to human health resulting from sediment contamination. Permits are required for wastewater, stormwater, and nonpoint source dischargers to surface waters of the state. When permits are violated, Ecology can penalize, close out the permit, or both. Washington's sediment management standards are some of the most rigid rules in the nation.

The Hydraulics Code is enforced through the actions of the Department of Fish and Wildlife. Any project occurring over the surface of the water must have a Hydraulics Project Approval (HPA) before beginning work. The purpose of this permit is to ensure that fish habitat is protected. Fish and Wildlife regularly inspect sites where HPAs are issued and issues civil and criminal penalties where violations have occurred.

Additional Needs to Meet this Management Measure

None needed

Actions to Satisfy this Management Measure

Adequate programs and processes exist to meet this management measure.

Additional Actions to Improve Water Quality

Evaluate the implementation of the Hydraulics code with an eye towards improving its use for water quality protection

2. Management Measure Number IIb: Instream and Riparian Habitat Restoration

Description from Federal Guidance

- (1) Evaluate the potential effects of proposed channelization and channel modification on in-stream and riparian habitat in coastal areas;
- (2) Plan and design channelization and channel modification to reduce undesirable impacts; and
- (3) Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat.

1998 Finding from EPA and NOAA

See general findings for hydromodification, page 146.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)

Chapter 197-11 WAC

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Salmon Recovery Act (Chapter 75.46 RCW)

Shoreline Management Act (Chapter 90.58-340 RCW)

Water Pollution Control Act (90.48 RCW)

Chapter 173-201A WAC (Water Quality Standards)

Chapter 173-204-400 WAC (Sediment Source Control)

Description of Current Programs in Washington

As with all other projects in the state, any hydromodification requires review under the State Environmental Policy Act. The SEPA checklist has an extensive section to investigate impacts to water and water bodies.

As explained in Chapter 3, three laws govern development at the land-water interface. These are the Hydraulic Code (Chapter 75.20 RCW), the Shoreline Management Act (Chapter 90.58 RCW), and the Public Lands Act (Chapter 79.01 RCW et seq). The Hydraulic Code and the Shoreline Management Act require the permitting of projects at the shoreline. Permits under the Hydraulic Code govern projects or components of projects in the water, and the Shoreline Management Act governs projects or components of projects on land. Permits can be issued with or without conditions, or denied. In addition, a lease is required from DNR, which generally includes the conditions of the permits as terms of the lease.

For project planning and review purposes, SEPA review, 401 certification, and Coastal Zone Determinations are the primary regulatory programs. The ability to address the three components has been adequately described in the Hydromodification overview.

A key to this process is the systematic review by agencies and the public. SEPA provides the framework to address process questions, while the 401 certification and Coastal Zone Determination focus on integration of legal authorities, the most critical of which are compliance with the state Water Quality Standards, Sediment Control Standards, and Hydraulics Code.

Numerous instream and riparian restoration programs are currently underway in Washington. The biggest of these is directed under the Salmon Recovery Act (Chapter 74.46 RCW). Limiting Factors Analysis are being carried out by local watershed groups across the state. Once completed, these areas are eligible for a variety of state and federal funds for restoration activities.

As a result of a TMDL analysis, many riparian restoration projects continue to be designed. Since temperature is almost always a factor in fish survival, shade restoration will continue to be a big program across the state.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Department of Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

WAC 173-204-400 sets forth a process for managing sources of sediment contamination. The goal of this process is to manage source control activities to reduce and ultimately eliminate adverse effects on biological resources and significant threats to human health resulting from sediment contamination. Permits are required for wastewater, stormwater, and nonpoint source dischargers to surface waters of the state. When permits are violated, Ecology can penalize, close out the permit, or both. Washington's sediment management standards are some of the most rigid rules in the nation.

The Hydraulics Code is enforced through the actions of the Department of Fish and Wildlife. Any project occurring over the surface of the water must have a Hydraulics Project Approval (HPA) before beginning work. The purpose of this permit is to ensure that fish habitat is protected. Fish and Wildlife regularly inspect sites where HPAs are issued and issues civil and criminal penalties where violations have occurred.

Additional Needs to Meet this Management Measure

None needed

Actions to Satisfy this Management Measure

Adequate programs and processes exist to meet this management measure.

Additional Actions to Improve Water Quality

Implement the work plan in the Salmon Habitat and Restoration Standards and Guidelines.

Dams

Background

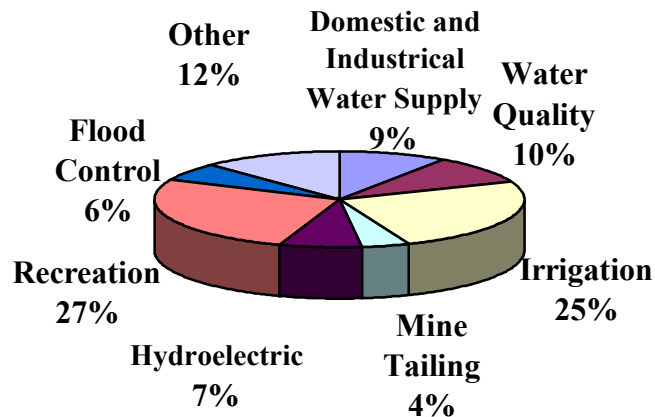
Most of the 1025 dams in Washington were built during the first half of this century, primarily for economic development -- irrigation, domestic water supply, and electric power. In the last two years, the rate of construction has significantly slowed. Most new projects are small dams for stormwater detention in urban areas, and storage lagoons built for treatment of domestic, agricultural, industrial and mining waste.

There are currently 1,100 dams in Washington that are regulated by Ecology's Dam Safety Section. The State does not regulate dams owned by the federal government. The number of dams continues to increase as 10 to 15 new dams are constructed each year.

Currently, no large dams are being built on significant streams and rivers. Fifty percent of current construction work is for repairs and enhancements on existing dams. About 10 new dams are built each year, typically located off-channel or on small streams. Most projects are either reservoir projects for water quality protection, or small dams built for flood control/stormwater detention in urban areas.

The figure below identifies the types of dams developed in Washington.

Types of Dams in Washington State



Description from Federal Guidance

Dams are divided into the following classes: run-of-river, mainstem, transitional, and storage. Each classification has particular problems that contribute to nonpoint source pollution.

The siting of dams can result in the inundation of wetlands, riparian areas, and forestland in upstream areas of the waterways. Dams either reduce or eliminate downstream flooding needed by some wetlands and riparian areas. Dams can also impede or block migration routes of fish.

There are three management measures for dams:

1. IIIa Dams--Erosion and Sediment Control
2. IIIb Dams--Chemical and Pollutant Control
3. IIIc Dams--Protection of Surface Water Quality

Specific federal guidance for each will be discussed in those individual sections.

Nonpoint Pollution Associated with Dams

There are a variety of nonpoint problems associated with dams. Construction activities from dams can cause increased turbidity and sedimentation in the waterway resulting from vegetation removal, soil disturbance, and soil rutting. Fuel and chemical spills and the cleaning of construction equipment have the potential for creating nonpoint source pollution.

The operation of dams can also generate a variety of types of nonpoint source pollution in surface waters. Controlled releases from dams can change the timing and quantity of freshwater inputs into coastal and fresh water. Dams operations may lead to reduced downstream flushing, which in turn, may lead to increased load of BOD, phosphorus, and nitrogen; changes in pH; and the potential for increased algal growth. Lower instream flows and lower peak flows associated with controlled releases from dams can result in sediment deposition in the channel several miles downstream of the dam.

Source Control Strategy

The source control strategy for dams is found in the discussion of each management measure.

1. Management Measure Number IIIA: **Dams--Erosion and Sediment Control**

Description from Federal Guidance

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction;
- (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Finding

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

State Environmental Policy Act (Chapter 43.21C RCW)

Chapter 197-11 WAC

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Salmon Recovery Act (Chapter 75.46 RCW)

Shoreline Management Act (Chapter 90.58-340 RCW)

Water Pollution Control Act (90.48 RCW)

Chapter 173-201A WAC (Water Quality Standards)

Chapter 173-204-400 WAC (Sediment Source Control)

Department of Ecology (Chapter 43.21A RCW)

Department of Ecology's Draft Stormwater Manual for Washington State

Description of Current Program

Dam construction requires a myriad of permits from the Construction General Permit to a Hydraulic Permit to a Shoreline Permit. The Construction General Permit requires sites to:

- Undergo SEPA review
- Prepare and implement a Erosion and Sediment Control (ESC) Plan
- Prepare and implement a Spill Prevention and Emergency Cleanup Plan

The purpose of the ESC plan is to use BMPs to prevent erosion at the site and sediment delivery to the state's waters. An ESC plan must ensure that:

- Exposed and unworked soils are stabilized in a timely manner
- Existing vegetation is preserved where attainable
- Cut and fill slopes are designed to minimize erosion
- Stabilization is adequate to prevent erosion of water conveyances and streams
- Sediment delivery to road surfaces is minimized

- Stormwater will pass through a retention pond or equivalent BMP
- Downstream properties and waterways are protected from impacts of construction
- Regular inspections, maintenance, and repair of stormwater management facilities are performed.

Permits can be denied if an appropriate sediment management plan is not part of the proposal. The act establishing the Department of Ecology, Chapter 43.21A RCW requires periodic inspections of all dams within the state. RCW 90.48.080 prohibits the discharge of any material that would alter the physical, biological or chemical characteristics of a water body. Since sediment alters the physical characteristics of water by introducing turbidity, it falls under the prohibition. Thus, a sediment discharge is considered a violation of RCW 90.48.020.

Best Management Practices for stormwater management, including erosion and sediment control, have been established through the new state-wide stormwater manual: "Stormwater Management in Washington State." This manual, currently under public review, sets BMPs for all construction and development within the state. All construction and development sites are required to prepare a plan demonstrating how the minimum requirements of the manual will be met. The manual should be adopted by summer 2000.

The new stormwater manual addresses construction for sites over one acre. For projects with sites greater than one acre, or which will have more than 5000 square feet of impervious surface after the project is finished, Ecology reviews the plan. For smaller projects, review of the plan is left to local governments. Ecology encourages local governments to verify compliance with the stormwater requirements in conjunction with the inspection that results in the Permit to Occupy. BMP implementation is also required in all municipal and construction general permits as well as individual industrial permits.

Additional Actions Needed

None needed

Actions to Satisfy this Management Measure

The state has adequate programs to satisfy this management measure.

Additional Actions to Improve Water Quality

Adopt the new stormwater manual to provide improved sediment control BMPs.

2. Management Measure Number IIIB: Dams--Chemical and Pollutant Control

Description from Federal Guidance

- (1) Limit application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

Findings from EPA and NOAA

Please see general findings for Hydromodificatin.

Existing Statute(s) and Regulations

Used Oil Recycling Act (Chapter 70.95 RCW)
Hazardous Waste Management Act (Chapter 70.105 RCW)
 Dangerous Waste Regulations (Chapters 173-303 WAC)
Water Pollution Control Act (Chapter 90.48 RCW)
Water Quality Standards for Surface Waters (Chapter 173-201A WAC)

Description of Current Program

Used oil is required to be collected and recycled under the Used Oil Recycling Act (Chapter 70.951 RCW). Disposal of used oil by other than recycling is prohibited. Local governments implement waste reduction and recycling at the county level.

With the exception of used oil, the Hazardous Waste Management Act (Chapter 70.105RCW) governs the storage, transfer, and disposal of toxic materials the Dangerous Waste Regulations, Chapter 173-303 RCW. Local governments develop and implement Hazardous Waste Management Plans approved by Ecology.

This requirement parallels the State's Dangerous Waste Regulations (Chapter 173-303) under the Hazardous Waste Management Act (Chapter 70.105 RCW). Any waste that enters the environment or has the potential to enter the environment, such as a spill or discharge to water, becomes dangerous waste, and the site falls under the Dangerous Waste Regulations.

The Water Pollution Control Act provides the primary mechanism to protect water quality during the project activity. Ecology administers laws and regulations pertaining to surface water quality, including nutrient runoff. Ecology visits projects and requires a short-term water quality modification for any project of significant size. For smaller projects, the Department relies on guidance to advise contractors on ways to minimize water quality impacts. Where violations of the water quality standards are documented, Ecology issues a penalty under RCW 90.48.080.

Additional Actions Needed

None needed

Actions to Satisfy this Management Measure

The state has adequate programs and processes in place to meet this management measure.

Additional Actions to Improve Water Quality

No additional actions are needed.

Management Measure Number IIIC: Protection of Surface Water Quality and Instream and Riparian Habitat

Description from Federal Guidance

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

- (1) Surface water quality and in-stream and riparian habitat and potential for improvement and
- (2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

Findings from EPA and NOAA

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

Salmon Recovery Act (Chapter 75-46 RCW)
Watershed Planning Act (Chapter 90.82)
Water Pollution Control Act (Chapter 90.48 RCW)
Hydraulic Code (Chapter 75.20 RCW)
Minimum Water Flows and Levels (Chapter 90.22 RCW)
Water Quality Standards for Surface Waters (Chapter 173-201A WAC)

Description of Current Program

The Watershed Planning Act requires local government to assess the impacts of current water withdrawals and recommends the establishment of instream flows to protect aquatic ecosystems. In addition, assessments of water quality within the watershed are authorized, and are generally being done. Even though it is a voluntary program, locals must address certain requirements. The Watershed Planning Act is being systematically applied statewide. The highest priority watersheds, those that are being impacted through administration of the Endangered Species Act, have received the first funding packages. The Act is being administered by the Department of Ecology, with required participation from other state resource agencies. Currently, 39 out of 62 Water Resource Inventory Areas have begun the planning process.

The Salmon Recovery Act requires local conservation districts to assess instream and riparian habitat and work with local governments to design and implement projects to repair damaged habitat. The Governor has convened a Salmon Recovery Team to develop mechanisms to restore instream flows and to minimize pollution problems and restore riparian habitat. Discussion on page 4-1 addresses the scope of this effort. This plan has adopted a number of Salmon Strategy Actions that address habitat, flow, and pollution control.

The Department of Ecology's Water Resources Program is active in setting instream flows for the state's surface and ground water. Any water withdrawals are permitted by the Water Resources Program.

Additional Needs

None

Actions to Satisfy this Management Measure

The State has adequate programs and processes in place to meet this management measure.

Additional Actions to Improve Water Quality

No new actions are needed.

Streambank and Shoreline Erosion

Management Measure Number IVA: **Eroding Streambanks and Shorelines**

Description from Federal Guidance

- (1) Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
- (2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
- (3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Findings from EPA and NOAA

Please see general findings for Hydromodification.

Existing Statute(s) and Regulations

Hydraulic Code (Chapter 75.20 RCW)

Chapter 220-110 WAC

Salmon Recovery Act (Chapter 75.46 RCW)

Shoreline Management Act (Chapter 90.58 RCW)

Description of Current Programs in Washington

Across the state, erosion of streambanks and shorelines is not considered a significant water quality problem, except in areas where manmade disturbances have contributed to alteration of flows and currents. In general, stabilization work has resulted in deprivation of sediment to streams and shorelines. This reduction in sediments has had disastrous effects on fish and shellfish production.

Much of the stream restoration work currently underway in Washington is focused on bringing back hydraulic function in the watershed. In many cases this involves removing hard structures and allowing streams to move within their channel migration zones.

The Salmon Recovery Act requires the Conservation Commission to assess instream and riparian habitat, and work with local governments to design and implement projects to repair damaged habitat. In cases where sediment from eroding banks and shorelines is causing habitat loss, projects are designed to stabilize the site. All projects are reviewed by Department of Fish and Wildlife and must have an HPA if working over the water.

In addition, the regulations for hydraulic permits require shoreline stabilization as a condition of approval:

“Bio-engineering is the preferred method of bank protection where practicable. Bank protection projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following technical provisions shall apply to bank protection projects:

(1) Bank protection work shall be restricted to work necessary to protect eroding banks.

(2) Bank protection material placement waterward of the ordinary high water line shall be restricted to the minimum amount necessary to protect the toe of the bank, or for installation of mitigation features approved by the department.

(3) The toe shall be designed to protect the integrity of bank protection material.

(4) Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so as not to reenter the water.

(5) Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion, within seven calendar days of completion of the project, using vegetation or other means. The banks, including riprap areas, shall be revegetated within one year with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center), and maintained as necessary for three years to ensure eighty percent survival. Where proposed, planting densities and maintenance requirements for rooted stock will be determined on a site-specific basis. The requirement to plant woody vegetation may be waived for areas where the potential for natural revegetation is adequate, or where other engineering or safety factors preclude them.

(6) Fish habitat components such as logs, stumps, and/or large boulders may be required as part of the bank protection project to mitigate project impacts. These fish habitat components shall be installed according to an approved design to withstand 100-year peak flows.

(7) When rock or other hard materials are approved for bank protection, the following provisions shall apply:

(a) Bank protection material shall be angular rock. The project shall be designed and the rock installed to withstand 100-year peak flows. River gravels shall not be used as exterior armor, except as specifically approved by the department.

(b) Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face.”

WAC 222-110-050

The Shoreline Management Act, as an act governing land use, requires compatible uses of adjacent properties. Shorelands are divided into areas of differing environmental designation, much like zoning under standard land use practices.

Additional Needs

None

Actions to Satisfy this Management Measure

The State has adequate programs and processes in place to address this management measure.

Additional Actions to Improve Water Quality

- Provide technical guidance, design criteria and financial assistance to local agencies and groups, including volunteers, to inventory, prioritize and correct barriers and screening problems and prevent new passage problems
- Develop and implement Integrated Stream Corridor Guidelines, building on the completed Integrated Streambank Protection Guidelines